

# Information Toward Goals of Poverty Reduction, Food Security, Enhanced Productivity and Income Growth for Small-scale Farmers in Zambia – Opportunities and Challenges

ACF/FSRP Presentation

By

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## Objectives - Overview

- Highlight some key issues & challenges
- Outline work under way to inform these
  - Illustrate the potential value of information that will be forthcoming (handout 1 set of tables)
- Throughout search for links to the key work areas of the new ASP Project
  - Approaches to extension
  - HH savings and credit routines
  - Empowerment of male and female farmers
  - Capacity building at MACO

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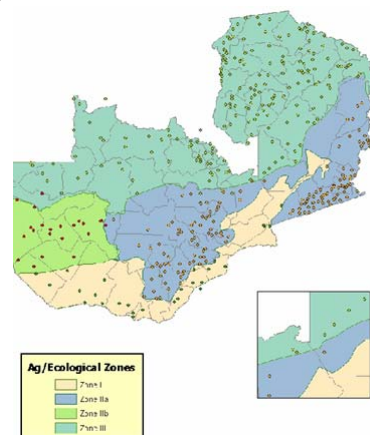
## Selected Issues and Challenges

- Sources of information (PHS,CFS and SS)
- Productivity in the ag sector–catch up needed
- Poverty reduction, especially rural poverty
- Maize yield variability – what are the drivers and what to do to improve conditions?
- Maize area left unharvested each year –what are the drivers and what to do?

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## Supplemental Surveys: Empirical Data on Smallholders in Zambia – Nation Wide Random Surveys

(PHS/SS 99/00, 02/03 & 07/08= 364 SEAs)  
(CFS 06/07 and onwards = 640 SEAs)



Map of Central Statistical Office Statistical Enumeration Areas (SEAs) Sampled in the CSO/MACO/FSRP Post Harvest and Supplemental Surveys in 2001, 2004 and in 2008) by Zambia's Agro-Ecological Zones

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## Verification of CFS 2007/2008 Data



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## 2008 Supplemental Survey With Smallholders



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**Table 1 Growth Rates in Key Agricultural Indicators in Zambia, 1990 - 2006**

Measure	1990 – 1994		1995 – 1999		2000-2005		1990–2005	CAADP 2015 Target
	<b>Total crop value</b>	-3.25		1.91		1.31		1.09
<i>Maize</i>	-0.50		0.66		1.62		0.49	4.84
<i>Cassava</i>	3.30		11.86		3.60		4.33	5.54
<i>Groundnuts</i>	-5.70		1.77		-0.53		2.96	5.35
<i>Cotton</i>	-8.17		-3.88		3.65		3.40	9.37
<b>Crop productivity</b>								
<i>Output per ha</i>	-2.95		-0.75		1.42		-0.06	
<i>Output per HH</i>	-4.76		0.27		0.77		-0.42	
<i>Area planted per HH</i>	-1.81		1.02		-0.65		-0.36	
<b>Poverty levels</b>								
	1991	1993	1996	1998	2004	2006	Average	MDG 2015 target
<i>Urban</i>	49	45	46	56	53	34	47	23
<i>Rural</i>	88	92	82	83	78	80	84	42
<i>Zambia</i>	70	74	69	73	68	64	70	35

Source: Forthcoming FSRP research paper on Trends and Spatial Distribution of Public Agricultural Spending in Zambia: Implications for Agricultural Productivity Growth by Govereh, et. al.

**Table 2. Mean Maize Yields on Hectares Planted - CFS 07/08 Data**

Quintiles of maize yield	Category of Household (based mainly on total cropped area over 13 crops)						National Level Yield Mean	National Level Number of Households
	Category A (> 0 - 2.5 ha)		Category B (> 2.5 - < 5 ha)		Category C (> 5 - 20 ha)			
	Yield mt/ha	Number of Hhs	Yield mt/ha	Number of Hhs	Yield mt/ha	Number of Hhs		
1- low	56.21	129,464	80.32	40,530	77.87	9,309	62.79	179,303
2	417.15	146,695	413.04	44,517	405.88	8,483	415.76	199,696
3- mid	898.01	153,900	899.92	40,706	895.60	7,128	898.31	201,734
4	1,624.89	139,195	1,648.41	35,741	1,648.90	7,312	1,630.46	182,249
5- high	3,364.54	136,700	3,423.86	37,650	3,569.55	10,375	3,388.15	184,725
Total	1,264.65	705,955	1,235.79	199,146	1,399.82	42,606	1,264.66	947,707

CFS 07/08... weighted data. All yields are "mean" estimates from smallholder declarations per plot planted/harvested.

Lots of low yield

2/5 of hhs with well above average yield

**Table 3. Mean Maize Yields on Hectares Planted by Use or Non-Use of Fertilizer**

Fertilizer Use Category	Quintiles of maize yield	Category of Household (Based on total cropped area over 14 crops)						National Level Yield Mean	National Level Number of Households
		Category A (> 0 - 2.5 ha)		Category B (> 2.5 - < 5 ha)		Category C (> 5 - 20 ha)			
		Yield Kg/ha	Number of Hhs	Yield Kg/ha	Number of Hhs	Yield Kg/ha	Number of Hhs		
Use Fertilizer	1- low	45.16	23,850	74.69	9,928	69.93	3,308	55.27	37,086
	2	422.88	28,470	437.41	13,328	417.46	3,678	426.70	45,475
	3- mid	936.62	33,920	915.77	17,552	922.73	3,597	929.07	55,069
	4	1,642.22	52,277	1,656.24	21,842	1,688.67	4,849	1,648.95	78,968
	5- high	3,537.01	86,263	3,549.52	30,189	3,665.60	8,716	3,548.98	125,169
	Total	1,939.00	224,780	1,787.81	92,839	1,872.81	24,140	1,893.25	341,767
NO Fertilizer	1- low	58.71	105,614	82.15	30,602	82.25	6,001	64.74	142,217
	2	415.77	118,225	402.63	31,189	387.01	4,806	412.53	154,220
	3- mid	887.10	119,980	887.91	23,155	867.96	3,531	886.77	146,665
	4	1,614.46	86,919	1,636.10	13,899	1,570.58	2,463	1,616.33	103,280
	5- high	3,069.58	50,437	2,915.40	7,461	3,064.64	1,658	3,050.13	59,557
	Total	949.63	481,175	753.70	106,307	781.00	18,458	940.12	605,999

CFS 07/08... weighted data. All yields are "mean" estimates from smallholder declarations per plot planted/harvested.

Low yield even with fertilizer use?

Very good yields with fertilizer use for all categories

High yield without fertilizer use!

**Table 4. Maize Area Planted and Harvested  
- CFS Data**

Ag. Year	% Area Planted that was Harvested – All Crops for Maize Growing Small & Medium-Scale Households		
	Small-S	Medium-S	Total
2000/2001	77.9	82.3	78.4
2001/2002	71.5	59.7	69.5
2002/2003	75.1	80.3	75.9
2003/2004	84.2	79.3	83.3
2004/2005	51.1	48.3	50.6
2005/2006	76.3	84.4	77.5
2006/2007	64.8	69.9	65.7
2007/2008	58.2	53.8	57.5

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**Table 5. Maize Area Planted/Harvested Within A  
Given Year - 07/08 CFS Data**

AEZ (Agro- Ecological Zone)	Yield 1 kgs harv. /ha harv	Yield 2 Kgs harv /ha planted	Harvest Percentage
Zone 1- Southern	1118	532	42 %
Zone 2a Eastern	1848	1162	59 %
Zone 2b Western	650	362	39 %
Zone 3 Northern	2088	1848	87 %
Total	1720	1226	64 %

Good  
results  
in a bad  
year

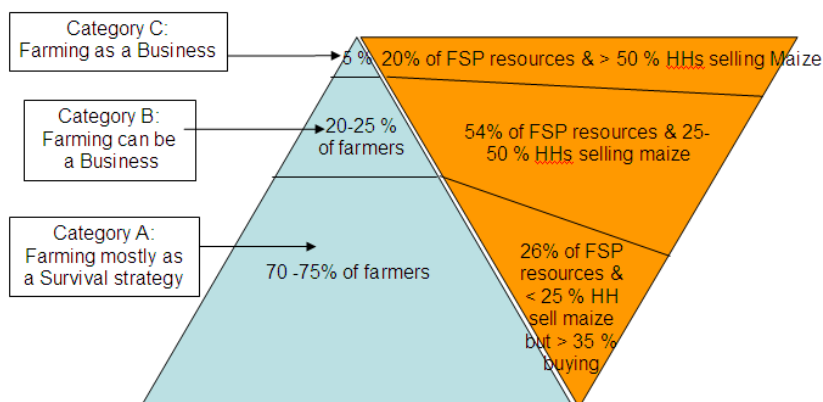
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## Smallholder Categorisation Activity - Information For Enhanced Targeting

- Technical group cooperating for better coordination & use of information for providing assistance to smallholder sector
- Participants so far:
  - ACF, FSRP, MACO, PAM, FAO, UNZA, MACO-SADFS, EC-Del, ZNFU (First meeting at Kafue George Aug 20-21, 2008)
- Use concept of “farming as a business” to help think about the targeting challenge
- Goal is to describe discernable groups/categories of smallholders according to production/asset and income capabilities who also face similar bottlenecks
- Challenge is to use such information for better programs and targeting

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Figure 1. Rough Estimate of Categories of Small & Medium-Scale Farmers Support Levels From One Program (Fertiliser Support Program) (CFS 07/08)



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## 4 Sets of Tables On Indicator Variables – Looking From Different Angles at the Data

- Means for Household Categories Ranked by Farm Size (Cultivated + Fallow)
- Means for Household Quintile Categories Ranked by Household Per Capita Farm Size (Cultivated + Fallow)
- Means for Household Quintile Categories Ranked by Household Income
- Means for Household Quintile Categories Ranked by Household Per Capita Income

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**Table 6. Smallholder Household-Level Findings – 2004 SS**

Indicators/Attributes	Means for Household Categories Ranked by Farm Size (Cultivated + Fallow)						All Smallholders >0 – 20 ha
	Category A >0-2.5 ha	Category A <i>Subdivided - 3rds</i>			Category B >2.5–5.0 ha	Category C >5.0– 20 ha	
		>0-.87	.88-1.5	1.5-2.5			
HH Land holding size ha/hh	1.24	.55	1.19	1.98	3.34	8.07	1.97
Number of smallholders	979,998	320k	344k	315k	218,322	68,825	1,267,145
% smallholders	77.34	25	27	25	17.23	5.43	100 %
Nine sets of Tables-Indicators							
1. Household Income							
2. Demographic Attributes							
3. Land Holding Variables							
4. Cropping Patterns							
5. Asset Ownership Patterns							
6. Fertilizer Use Patterns							
7. Spatial Location Patterns							
8. Market Behaviour Patterns							
9. Food Security Indicators							

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**Table 7. Smallholder Household-Level Findings – 2004 SS**

Indicators/Attributes	Means for Household Categories Ranked by Farm Size (Cultivated + Fallow)						All Small- holders >0 – 20 ha
	Category A >0-2.5 ha	Category A <i>Subdivided - 3rds</i>			Category B >2.5–5.0 ha	Category C >5.0– 20 ha	
		>0-.87	.88-1.5	1.5-2.5			
HH Land holding size ha/hh	1.24	.55	1.19	1.98	3.34	8.07	1.97
Number of smallholders	979,998	320k	344k	315k	218,322	68,825	1,267,145
% smallholders	77.34	25	27	25	17.23	5.43	100 %
<b>1. Household Income</b>							
Household Income ZMK	1,903,869	1.5m	1.6m	2.6m	3,230,740	7,811,006	2,453,329
Household per capita income	385,752	338k	354k	468k	586,072	1,125,481	460,983
<b>2. Demographic Attributes</b>							
Number of adults in hh 12 & >	3.45	3.8	3.5	3.8	4.06	4.94	3.63 adults
Number female headed hh %	27	35	26	19	12.51	11.29	23.45 %
<b>3. Land Holding Variables</b>							
Land size hh per capita ha/hh	.29	.16	.29	.42	.67	1.34	.41 ha/hh
<b>4. Ag. Extension access</b>							
% Hhs receiving extension	43	33	46	51	58	67	47 %

**Table 8. Smallholder Household-Level Findings – 2004 SS**

Indicators/Attributes	Means for Household Quintile Categories Ranked by Household Per Capita Farm Size (Cultivated + Fallow)					Overall Small-holders
	1 Low	2.	3. Mid	4.	5. High	
HH PC Land Hold Size ha/hh	.09	.19	.29	.46	1.11	.41 ha/hh
Number of smallholders	263,430	262,862	262,038	250,437	228,378	1,267,145
% smallholders	20.79	20.74	20.68	19.76	18.02	100 %
<b>1. Household Income</b>						
Household Income ZMK	1,987,884	2,145,916	2,300,000	2,324,318	3,661,444	2,453,329
Household per capita income	305,639	306,409	356,409	442,104	956,783	460,983
<b>2. Demographic Attributes</b>						
Number of adults in hh 12 & >	4.14	4.00	3.69	3.41	2.81	3.63 adults
Number female headed hh %	26.20	22.57	19.91	24.32	24.41	23.45
<b>3. Land Holding Variables</b>						
Land size per household ha/hh	.64	1.24	1.75	2.42	4.11	1.97
<b>4. Ag. Extension access</b>						
% Hhs receiving extension	38	45	50	51	54	47 %

## Ways Forward To Use This Information?

- Finish in 2008 6 sets of Tables using 2004 SS and CFS 07/08 data. (Handout today 1 set of these)
- ACF/FSRP and other smallholder categorisation partners –begin discussing these and suggesting additional questions
- Use 2008 SS data for another 4 sets of tables. Begin analysis in January 2009.
- MACO – others identify additional analysis to help inform new ASP and other GRZ/Donor objectives & programs

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Zikomo Kwambili,  
Natotela sana,  
L'i tumezi ahulu,  
Twalumba kapati,

**Thank you to Zambian smallholders and to cooperating partners for this opportunity to obtain/share information and ideas – we welcome questions and comments**

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